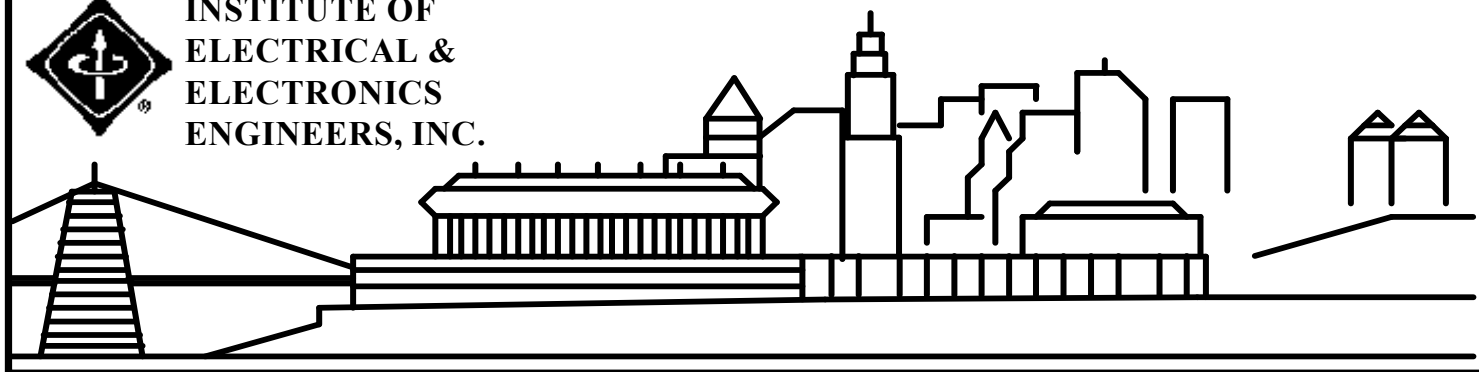




INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.



FEBRUARY 1998

IEEE CINCINNATI SECTION NEWSLETTER

*As a prelude to a celebration of
ENGINEERS WEEK,*

ENGINEERS AND SCIENTISTS SERVING GREATER CINCINNATI
invites you to attend the

63RD ANNUAL RECOGNITION and AWARDS PROGRAM
to be held on Thursday February 19, 1997 at

**The Syndicate
18 East Fifth Street
Newport, Kentucky
(Downtown Newport - Two blocks east of the County Courthouse)**

Time: 6:00 P.M. - Social Hour (Cash Bar and Vegetable Trays)
7:00 P.M. - Dinner
8:00 P.M. - Presentation of Awards
8:30 P.M. - Speaker (Laura Long of the City of Newport)

Cost: \$30.00

This dinner is a joint meeting with the American Society of Civil Engineers (ASCE), the Ohio Society of Professional Engineers, and the Northern Kentucky Chapter of the Kentucky Society of Professional Engineers (NKSPE). In addition, many other technical and professional societies will be represented by those in attendance. Come and share experiences with other professionals, make new friends, enjoy good food, meet this year's award recipients and hear highlights about the rejuvenation of the City of Newport and the high profile projects planned for the riverfront area.

Additional Information:

Meal: The meal features a choice of entree of either prime rib, broiled salmon, or chicken marsala, together with a salad, vegetables, and a dinner beverage. Gratuities are included in the meal price.

Reservations: Reservations may be made by calling Kim at (513) 244-5121. It is important when making your reservations to indicate your choice of entree. Because we are offering a selection of entree, it will be difficult to accommodate a large number of walk-ins the night of the dinner. Please cooperate and call in your reservations.

Payment: Checks should be made payable to "ESC". We request that reservations be confirmed by prepayment of dinners before February 12, 1998. Mail your payment to:

ESGC
c/o Bill Schrudde
KZF, Inc.
655 Eden Park Drive
Cincinnati, Ohio 45202

Parking: Valet parking is available and there is also some on-street and commercial lot parking available in the general area.

Speaker: The speaker for the evening will be Ms. Laura Long, Director of Economic Development for the City of Newport. Her presentation will include a review of Newport's development progress over the past decade and including current projects such as the proposed aquarium and millennium tower.

Questions: If you have questions or need additional information, feel free to contact Kim (above) or Frank Rothfuss at (606) 431-8579.

CHAIR'S MESSAGE

by Randy Holt, Section Chair

Welcome Laurie! Laurie Tappel from Cincinnati Bell Telephone has been elected by all of you as our new member-at-large and will serve a 2-year term. She was at our Executive Committee meeting on January 15 and immediately became part of the action, agreeing to look into one of our technical meeting possibilities. I'm sure you will see her "handiwork" in the coming months.

How do you learn?

All of us have been either immediately or indirectly affected by company downsizings, and many of us have found ourselves back in the job market. In our professions, technical skills are very important, and we often find that the skills we used in our past job aren't the skills that the competitive marketplace wants. We find that we have to find a way to learn new things.

Universities, colleges, and technical schools are typically where many of us go to obtain the new skills. They can be very helpful, but often we need things that aren't easily found in these institutions. They can best offer fundamental education but the job market wants specific skills. Workshops and technical training programs can provide some of the remaining needs, but there can be things that these programs don't offer either. Where can we go from here? Or how can we find resources when we're unable to attend organized programs?

Even if we're lucky enough to keep our jobs, most of us realize that the "old days" of corporations "taking care of their employees" is gone (or perhaps never were really there). We recognize that it's extremely important to remain marketable by keeping up with our profession. Then if downsizing comes along, hopefully we're in a good position to move quickly into another job.

Today there are some technologies that can help us either keep up or gain skills in a new area. Things like the Internet, interactive CD-ROMs, etc. And then, of course, we have the "old" ways using technical magazines and journals. Have any of you found anything that has helped you gain skills? Do you have suggestions on what areas are best for electrical and electronic engineers who have lost their jobs?

I would like to hear from you on how you learn, what you feel are important growth areas that relate to our profession. I would then like to include these in upcoming newsletters, and perhaps they can help some of our members. Please e-mail me (holthr@nku.edu). And, of course, I always appreciate any suggestions on new technical programs or ways that your section officers can give you more value for your money!

The Personal Computer - Part 4

by Dick Reiman, Historian

Intel had grown from a small company with a few employees to a leading one, especially in producing programmable logic chips. The first microprocessor chip, the 4004, appeared in the late 1970's. With 2,250 transistors, it could process 4 bits of data at a time, and carry out 60,000 operations per second, but it wasn't powerful enough to serve as the central processor of a minicomputer, only a calculator, a taximeter, or a cash register.

At first, Intel didn't realize that this device could be the control of all sorts of devices, a washing machine, gas pump, butcher's scale, juke box, typewriter, doorbell, and a thermostat. At first sales lagged until engineers gained an understanding of the microprocessor's capabilities. Intel introduced the first 8 bit microprocessor, the 8008, in 1974 which was powerful enough to be the control of a minicomputer. A better device was the 8080 in 1974 and for several years Intel was the only microprocessor maker in the world. By 1983, Intel had 21,500 employees and \$1.1 billion in sales. The small, inexpensive personal computer was now feasible.

Technically, the task wasn't complicated, but no one could predict if a market existed. Just use a calculator, a typewriter, or do computer time-sharing for the problems of the day. Only two companies dabbled with the idea, Hewlett-Packard, and Digital Equipment Company. One of Digital's employees, David Ahl, a market researcher who possessed an engineering degree, an MBA and a MA in educational psychology, set up an educational products group and succeeded in selling \$20 million of packaged computer systems to high schools and colleges. In 1973, Ahl's group had \$20 million in sales, about half the educational market for minicomputers with Hewlett-Packard close behind. Only a few individuals, usually consulting engineers, bought them. Ahl suggested that Digital, the personal computer, market with schools and for home use, using Digital' PDP-8. He proposed a computer, attaché case size, with a monitor, keyboard and a floppy disc (which was then only a prototype), all to cost \$5,000. Digital's board was split on the proposal. Why buy a limited PC when time-sharing was more cost effective? When his proposal was denied, Ahl left Digital. The future of the PC was now in the hands of the electronic hobbyists.

Jonathon A. Titus, studying for a doctorate in chemistry at Virginia Polytechnic Institute at Blacksburg, and later at Worcester Polytechnic and Rensselaer, became interested in Intel's 8008 chip for use in a PC which he called the Mark 8. He approached Radio-Electronics magazine, they liked it, and ran an offer to "build your own Mark 8" in its July 1974 issue. To keep cost down, no ROM was used, so every instruction had to be entered by the user, and repeated each time. Titus wrote a 48 page instructional manual, which was published by Radio

Electronics, and purchased for \$5.50. The circuit board from Techniques Inc, of Englewood, New Jersey, cost \$47.50. Other components from Intel and others brought the total to \$250 plus plenty of time and trouble. Titus's invention brought response from 10,000 Radio-Electronics readers for the instruction book and about 2,500 for the circuit boards. This spawned computer clubs, and planted the seed for a PC for all.

PLEASE HELP US CONTROL COSTS!!!

Do you realize that the largest annual expense of our Section is for copying, handling and mailing of your Newsletter? Last year, your Section spent over \$7,000 to bring you your Newsletter. This is money which could be used to provide more technical programs, to bring in more speakers to our Section Meetings or to create a greater presence for IEEE among the general public.

If you would like to help us control costs and you either have access to the Internet or you have e-mail, this Newsletter can either be viewed from our Web Page at <http://ieee.cincinnati.fuse.net/> or it can be received via e-mail. If you would be interested in either of these two options, please contact Bob Morrison, Newsletter Editor, at (513) 287-3697 or e-mail at j.r.morrison@ieee.com.

SECTION MEETING LOCATION CHANGE

Beginning in March 1998, our Section Meetings will no longer be held at IAMS. We will inform you of the new location as soon as we possible.

RETIRED ENGINEERS AND SCIENTISTS OF CINCINNATI LOSE A VALUED MEMBER

The following is reprinted with permission of the Retired Engineers and Scientists of Cincinnati and was written by Carl F. Evert:

"On December 12, 1997, the Retired Engineers and Scientists of Cincinnati lost a valued colleague in the death of Dr. William (Bill) Middendorf. It is a difficult task to briefly summarize a life as productive as Bill's for he was a consummate engineer, scholar, dedicated teacher, author and academic administrator. To each of these facets of his life, he brought the personal skills of intelligence, common sense and good humor which assured success. As his office-mate of over two decades at the University of Cincinnati, I saw him go about the many tasks imposed by his chosen profession with a zeal, dedication and organization which was worthy of emulation by anyone seeking a useful expenditure of the brief time we are each allotted in life. Everything had a purpose for him.

"When I first encountered Bill in 1950, he had completed high school at the Covington Latin School, an undergraduate degree as a Navy V12 student at the University of Virginia and a MSEE from the University of Cincinnati. I got a glimpse of the precociousness of the students at the Latin School many years later when I was asked to teach a senior class in computer technology there. When I entered the classroom and saw a group of fourteen to sixteen year old boys, I said 'I thought this was to be the senior class.' Whereupon the smallest of the lot drew himself to a full four-foot eight-inches and said, 'Sir, we are seniors.' Bill's doctorate in Electrical Engineering was earned at Ohio State University in a period when graduate students over thirty years old were not being accepted in some universities. During that time, Bill continued to teach at U.C. and consult for Wadsworth Electric Co.

"I watched Bill labor on his first book on electrical circuit theory as he meticulously drew out the many waveform illustrations. It was the first in a series of books which culminated in one co-authored with Dick Englemann just prior to Bill's death. Bill's breadth of vision is epitomized by the series he edited for Marcel Dekker under the heading of *What Every Engineer Should Know About* _____. He wrote the second volume about product liability and I wrote the third on microcomputers. His patents were numerous. We obtained one jointly on an underground metal detector in our early years, but Bill's research efforts for Wadsworth Electric generated many more. He visualized mechanical systems as electrical equivalents, made the design modifications in the electrical domain and then converted the embodiment back into the mechanical terms, thereby achieving many novel new designs. On the basis of these professional contributions, Dr. Middendorf was awarded the grade of Fellow in the Institute of Electrical and Electronic Engineers.

"Academically, Bill rose through the ranks from Instructor to Professor based on his teaching skills. Many members of the RESC will remember his introductory electrical circuits course for non-electrical majors with kindness as he strove to make the electrical domain palatable to sometimes reluctant students. In recognition for these efforts, he was awarded an Outstanding Teacher Award by the College of Engineering. Later he served as Assistant Head of the Department of Electrical and Computer Engineering, testified as an expert witness in many product liability cases, served for many years on the Board of St. Elizabeth's Hospital and was a member of St. Agnes Parish for forty-one years.

"Dr. Middendorf is survived by Evelyn, his wife of fifty-one years, five children and thirteen grandchildren. He will be missed by all whose life he touched with his special kind of love, dignity and caring".

IEEE NEWS

IEEE EAB and IEEE-USA Urge New Direction in Engineering Education

PISCATAWAY, N.J., Dec. 31, 1997 - The Educational Activities Board of the Institute of Electrical and Electronics Engineers, Inc. (IEEE EAB) and IEEE-USA have released an Entity Position Statement, "Engineering Education in the United States."

The statement advocates new guidelines for engineering education from the employer-needs perspective and calls for the faculty to instill in their students the discipline of continuous learning. "The IEEE Educational Activities Board and IEEE-USA believe that the suggestions made in this statement will help engineers remain professionally vital throughout the course of their careers," said Jerry Yeargan, 1997 vice president of IEEE Educational Activities. "The U.S. system for the education and training of engineers, technologists, and technicians should help students develop broad backgrounds and the capabilities to respond to rapid technology changes in a global environment," added the 1997 IEEE-USA Chair, Daniel R. Benigni.

IEEE EAB and IEEE-USA advise that in addition to teaching the basics of engineering and associated technologies, engineering faculties address the following:

- Practice- and design-oriented undergraduate engineering programs that, in addition to teaching engineering skills, have a central focus on teamwork, communication skills, and the principles of engineering design. Cooperative internship programs between industry, government, and other universities are encouraged. "These types of programs provide the students with the opportunity to work in various disciplines of engineering," stated Yeargan.
- Practice-oriented graduate programs focused on a variety of technological specialties in engineering.

- The knowledge base and ability required to support lifelong learning.

"Engaging in the profession of engineering now requires that engineers continually strengthen and refresh their talents to remain creative and innovative," commented Benigni.

Furthermore, the statement discusses the need for career paths that offer engineering graduates relevant, attractive, and connected career choices. Undergraduate programs should provide students with the opportunity to establish a career plan and enhance their understanding of the multiplicity of organizational cultures where engineering practices are involved.

According to the statement, graduate-level engineering programs should also offer teaching practicums for those candidates interested in teaching positions. On the undergraduate level, the curricula should focus on the impact of engineering in private enterprise, government service, and the academic sector.

"The enormous breadth of engineering activities affects the society at large," concluded Yeargan. "It is important that engineering education encompasses all the activities that help engineers make suitable decisions."

For more information about the entity statement, please contact Tatiana Garnys of IEEE Educational Activities at (732) 562-6526 or t.garnys@ieee.org.

IEEE-USA PUBLISHES THE ENGINEER'S GUIDE TO LIFELONG EMPLOYABILITY

WASHINGTON, Jan. 19, 1998 -- IEEE-USA has released *THE ENGINEER'S GUIDE TO LIFELONG EMPLOYABILITY*, a comprehensive career resource book for all engineering disciplines designed to help professionals locate and obtain rewarding engineering jobs throughout their careers.

The 173-page GUIDE teaches the cutting-edge skills needed to prosper in today's technical job market. Engineers will learn how to conduct effective electronic job searches and make use of a whole gamut of sources beyond the traditional newspaper classified ad. They'll also learn how to write a new computer-searchable resume that showcases specific skills and experience, how to create and use a career network to their advantage, and apply knowledge on transitioning from work to school, researching prospective employers, and interviewing and negotiating the job offer. There is even a chapter on consulting as an employment alternative.

"This book should be required reading for every graduating engineer, every engineer over the age of forty, and every engineer who has thoughts about becoming self-employed. It is quite simply the best book on the market today about engineering career management," wrote Ed Safford, Lockheed Martin Senior Engineering Staff, in a recent review of the GUIDE. "I would describe this guide to lifelong engineering employment as the single most succinct, useful, and hard-hitting book on the topic I have ever read," echoed Larry Stern, IBM project manager, in a review in the January 1998 issue of SPECTRUM magazine.

THE ENGINEER'S GUIDE TO LIFELONG EMPLOYABILITY is priced at \$19.95 for IEEE members and \$24.95 for non-members. To obtain a copy, call 800-678-4333 and ask for Product Number UH2970. For additional information and a complete list of IEEE-USA's employment efforts, check out its employment-assistance Web site at URL <www.ieee.org/jobs.html>, or contact William Anderson at 202-785-0017, ext. 330, or <w.anderson@ieee.org>.

NEW SALARY ESTIMATOR TELLS ENGINEERS WHAT THEY'RE WORTH

WASHINGTON, Jan. 12, 1997 – IEEE-USA has released a new career tool that will allow electrical, electronics and computer engineers to pinpoint their personal salary estimate. For the first time, electrotechnology professionals will have an effective and inexpensive way to evaluate their own current compensation and determine salary expectations for prospective positions.

SALARY BENCHMARKS: A PERSONAL WORKBOOK uses IEEE-USA 1997 salary-survey data to create a mathematical model to compute comparative estimates of pay for any of thousands of different employment situations. The workbook guides readers step-by-step through the formula and provides examples that illustrate uses of the data.

"Until recently, the typical way to measure your salary against the broader labor market was to keep an ear cocked to office gossip or wheedle reluctant acquaintances working at other companies," said Ross Anderson, chair of IEEE-USA's Survey Committee. "Our new salary workbook makes the process fast, easy and -- most importantly -- accurate."

Engineers can obtain **SALARY BENCHMARKS: A PERSONAL WORKBOOK** for \$14.95 (members) or \$19.95 (non-members) by calling 1-800-678-IEEE and asking for product no. UH-2976. The complete IEEE U.S. MEMBERSHIP 1997 SALARY AND FRINGE BENEFIT SURVEY (product no. UH-2966), containing 64 pages of detailed comparative salary charts and analysis, is still available for \$74.95 (members) and \$119.95 (non-members).

NEW MEMBERS

The following individuals are existing IEEE members who have moved into the Cincinnati Section:

JASON P. BRYANT
LAURIE J. HUSSONG
GARY E. LIEBISCH
ERIC T. MATSON
DEBORAH L. NAUGHTON
ROBERT E. SCHAFRIK
KEDRIN L. SIMMONS
KENNETH A. THOMAS
JAMES P. ZUPTICH

We wish to extend our welcome to all of our Section's new members!!!

Dee Scott (call for meeting reservations)

Randy Holt - Chairman

Bob Haas - Vice Chairman

Orest Melnyk - Treasurer

Chris Anderson - Secretary

Ron Harbaugh - Member-At-Large

Laurie Tappel - Member-At-Large

Jack Beckmeyer - Arrangements Chairman

Bill Lohner - PACE Chairman

Bob Morrison - Editor

923-9546 (Phone), 923-9547 (Fax)

572-5710 (Office), holthr@nku.edu (E-mail)

231-2584, rwhaas.engr@worldnet.att.net (E-mail)

397-5419, o.melnyk@ieee.org (E-mail)

891-6402, canderso@uceng.uc.edu (E-mail)

352-6202, Ron.Harbaugh@CinPD.RCC.ORG (E-mail)

397-6383, ltappel@cinbell.com (E-mail)

353-2643, 353-2671 (Fax)

385-7268, Ron.Harbaugh@cinphone.rcc.org (E-mail)

287-3697 (Office), 287-4155 (Fax)

j.r.morrison@ieee.org (E-mail)

FEBRUARY 1998

IEEE CINCINNATI SECTION NEWSLETTER



**The Institute of Electrical and
Electronics Engineers, Inc.**

C/O Dee Scott

PO Box 53308

Cincinnati, Ohio 45253

DATED MATERIAL
Please deliver promptly
If undeliverable, please discard